

# Long-term Assessment for the Terwilliger Fire

## OR-WIF-180227

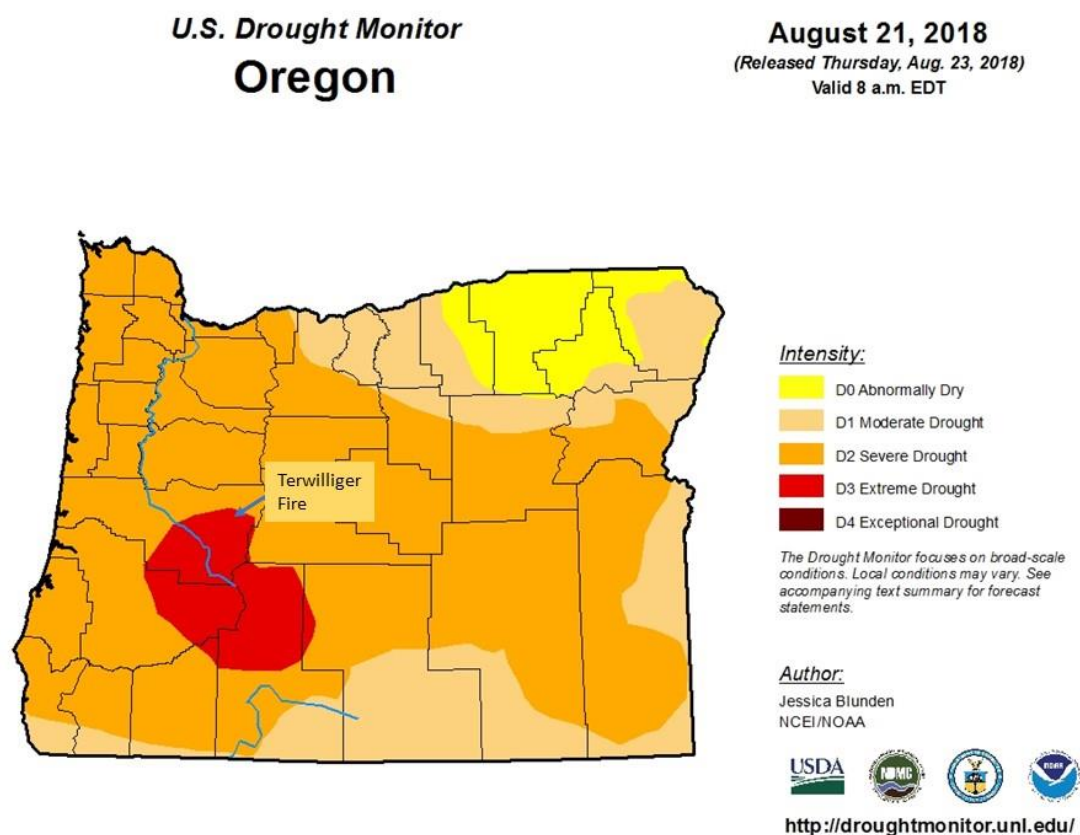
### 08/26/2018

#### Background & Purpose

The Terwilliger fire was reported on August 19, 2018 at 15:21. The fire started near a widely used recreation spot named Terwilliger Hot Springs near Cougar Reservoir on the Willamette National Forest. The fire quickly spread and was reported as 125 acres that evening. This fire has been managed by a Type 2 Incident Management Team since August 22<sup>nd</sup> and is currently approximately 5,400 acres and very active. The purpose of this assessment is to provide line officers and fire managers information on the climatology of the area and short, near, and long-term fire weather and behavior outlooks and discussion.

#### Climatology

This area has been under a prolonged drought with minimal snowpack last winter and a lack of precipitation this summer. The US Drought monitor currently has the area of the fire listed as being in Extreme Drought. The precipitation at the Fields RAWS shows the area has only received 66% of the average moisture over the last three months and the major of this was in one day in mid-June. The last recorded moisture received was on June 21<sup>st</sup>.

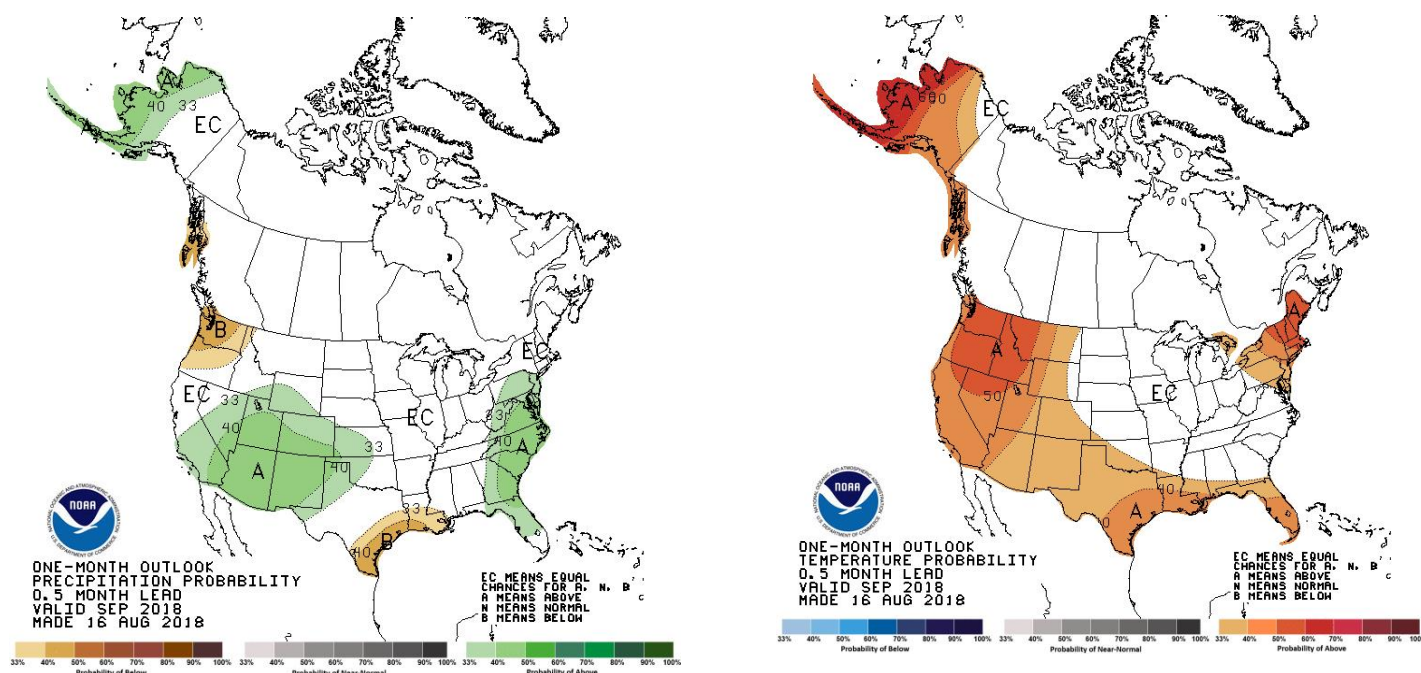


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The Climate Prediction Center has the probability of precipitation for September as below average for the fire area while the temperature is forecasted to be above normal.



## Local Fuels and Topography

The Terwilliger fire is burning in the Eastern Cascades in steep rugged terrain with few flat areas. The fire is burning on both sides of Cougar Reservoir at an elevation ranging between 1600 and 3500 feet, the slopes generally range from 60% to vertical. This area is of volcanic origin and the timber in most areas is shallow rooted due to the minimal topsoil. The fuel type in this area is mainly large mixed conifer including fir and redwood, most areas do not have any recorded fire history, fuel treatments, or logging units. The timber species is overaged and has a large amount dead and down fuels along with a duff layer of up to 2 feet deep. The denser timber has Lichen growth which is the major cause of spotting as it starts on fire and floats on the wind.

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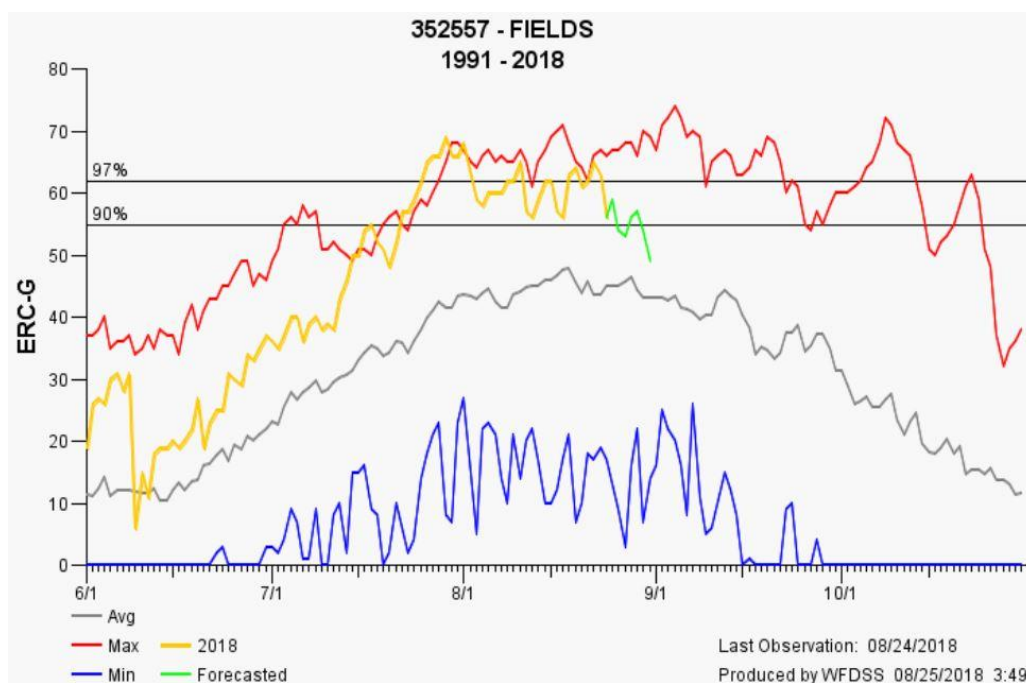
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#### Fuel Status

Current cool, moist conditions are moderating fine fuel moisture, but 1000-hr fuel moisture remains low as a result of long term drying. Fine fuels may support fire spread during the driest portion of the day, but good humidity recoveries will otherwise affect their availability. Grasses and other herbaceous fuels are fully cured at low to mid elevations but remain greener at higher elevations. Shrubs are partially cured (33%) at low to mid elevations and contribute to fuel loads. Shrubs at higher elevations are less cured and less receptive to fire. Slash fuels will burn readily, with intensity, and for long duration. Slash accumulations may lead to torching and spotting under windy conditions. ERCs hit record levels last week but are forecasted to return to near normal levels in the week ahead. Current ERC values reflect above normal fire potential; however, ERCs are expected to drop to average conditions in the coming days. In the absence of notable precipitation, ERC values will quickly rebound to high levels with the return of hot, dry conditions over several consecutive days.

Using the Fields RAWS station which is near the fire area and is representative of conditions seen on the fire the current ERC's are at 90% compared to the data over the last 20 years. ERC or Energy Release Component is a calculated measure of the amount of energy release at the head of the fire, it takes into account the heavy fuels and the recent weather and is a good measure of potential fire activity. With the current weather forecast this is expected to quickly drop over the next 7 days but will rebound in the following weeks.



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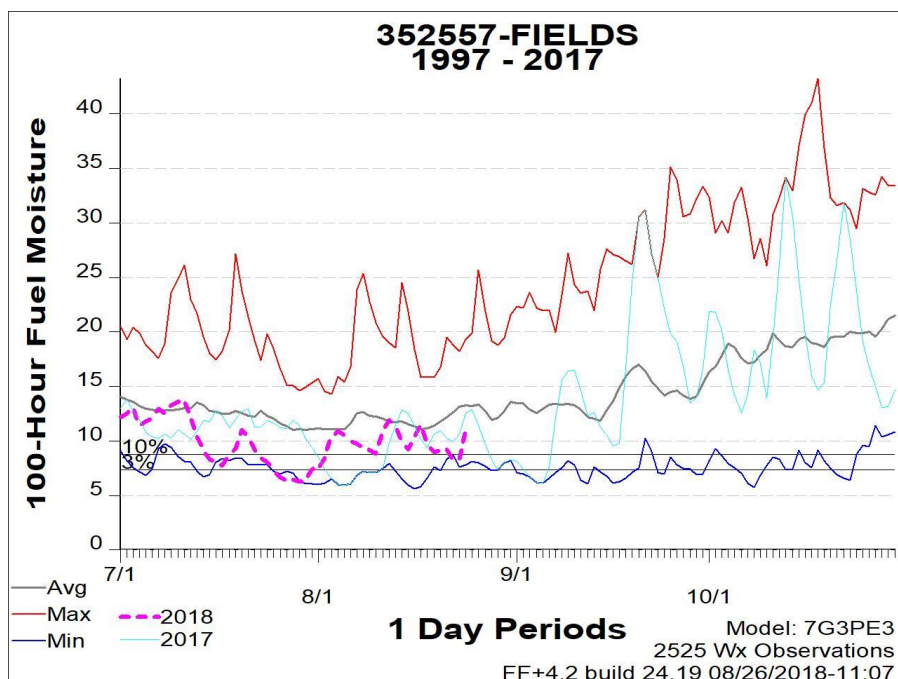
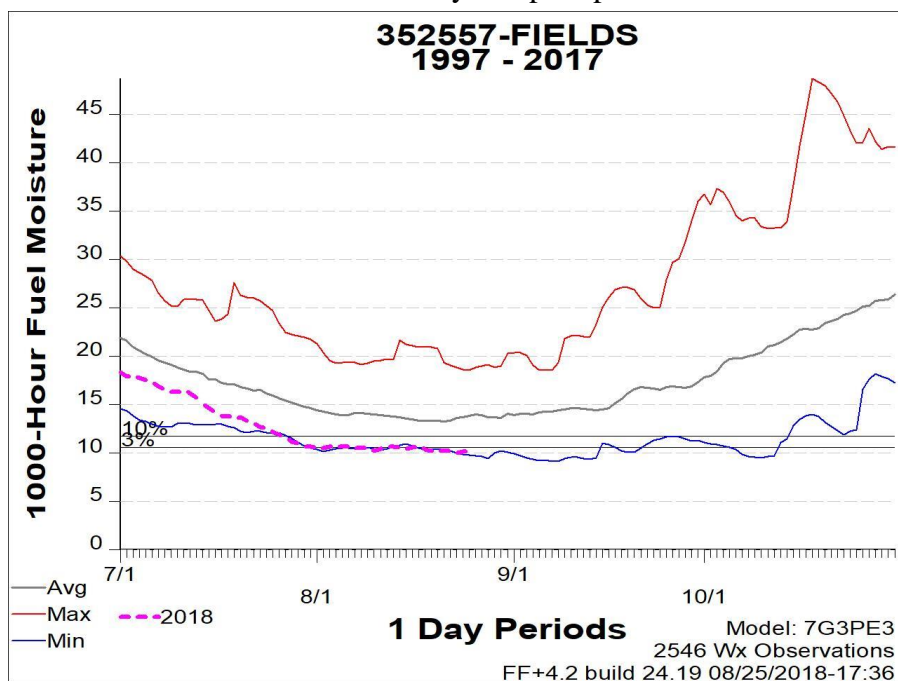
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#### Fuel Moistures

The fire is mainly spreading through the 100 hour fuel (1-3") and the 1,000 hour fuel (3-8"), there is minimal spread through the finer fuels which is either lacking or hasn't cured enough to burn.

The 1000 hr. fuel moistures which are representative of the timber fuels that are burning have been setting record low moistures since late July they are currently calculated at 10%. For these fuels to fully recover to normal they would need six weeks of increased humidity and precipitation.



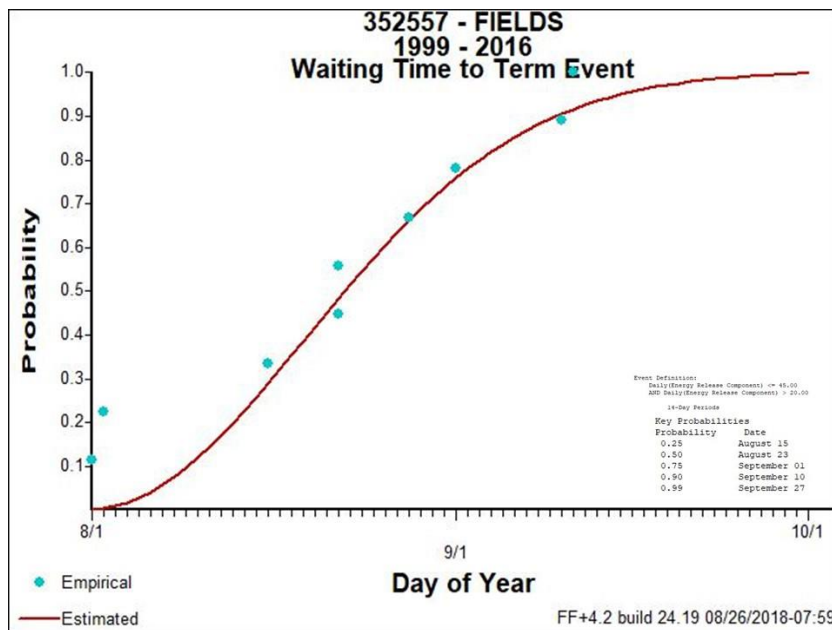
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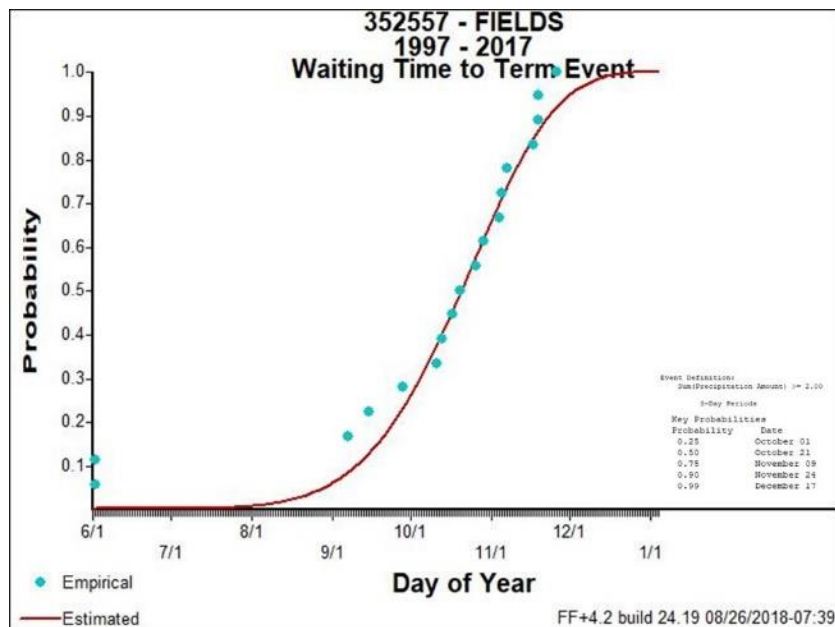
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#### Season Slowing and Ending Events (Historical data)

Using historical data from the Fields RAWS and fire history for the Willamette National Forest it was found that there were very few fires that started when the ERC's dropped below a value of 45. The criteria used for the Season Slowing event was when the ERC at the Fields RAWS dropped below 45 and stayed below this for 14 days in a row. This graph show that historically this occurred 90% of the time by September 10<sup>th</sup>.



Local fire personnel were contacted for criteria for when most fires in the area stop spreading and the fire season essentially ends. The consensus is that this is when several inches of rain fall in the fire area over several days. The criteria to find this historical date was 2" or more of rain over 3 days, this graph show that this historically happens 90% of the time by November 24<sup>th</sup>.



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**Summary**

Using local and historical data the Terwilliger fire will continue burning in the droughted and dry heavy timber until a Season Slowing Event. With the lack of natural or man-made features to inhibit fire spread and the difficulty of suppression in this topography and fuel type the fire will probably continue adding acres until as late as September 10<sup>th</sup>. With an average (as of 08/26) growth of 900 acres per day this would mean growth of an additional 14,400 acres for a final fire size of ~19,000 acres. The length of the fire and final acres is based on historical data from the last 20 years, obviously this could either be decreased or extended if the weather moderates or becomes more severe.

Robb Beery

LTAN, Terwilliger Fire

[rbeery@rimgis.com](mailto:rbeery@rimgis.com)